# CLAIMS

1. A plasma processing device comprising:

a chamber capable of maintaining an atmosphere depressurized less than atmospheric pressure;

a transfer pipe connected to the chamber;

a gas introduction mechanism for introducing a gas into the transfer pipe; and

a microwave supply source for introducing a microwave from outside to inside of the transfer pipe,

the plasma processing device being capable of forming a plasma of the gas in the transfer pipe and performing plasma processing on a workpiece placed in the chamber, wherein

the transfer pipe is connected to have an opening in an inner wall of the chamber, the inner wall being generally perpendicular to a major surface of the workpiece, and

the workpiece is not provided on direct line of sight from the plasma.

2. A plasma processing device according to claim 1, wherein the transfer pipe is connected to the inner wall of the chamber with a tilt such that its axis line is directed away from the workpiece as compared to when the transfer pipe is connected generally perpendicular to the inner wall of the chamber.

3. A plasma processing device comprising:

a chamber capable of maintaining an atmosphere depressurized less than atmospheric pressure;

a transfer pipe connected to the chamber via a generally L-shaped connection pipe;

a gas introduction mechanism for introducing a gas into the transfer pipe; and

a microwave supply source for introducing a microwave from outside to inside of the transfer pipe,

the plasma processing device being capable of forming a plasma of the gas in the transfer pipe and performing plasma

processing on a workpiece placed in the chamber, wherein

the connection pipe is connected to have an opening in an inner wall of the chamber, the inner wall being generally opposed to a major surface of the workpiece, and

the connection pipe has an inner wall made of a fluorine-containing resin.

4. A plasma processing device according to any one of claims 1 to 3, further comprising a light shield for blocking light emitted from the plasma and for allowing passage of active species emitted from the plasma, the light shield being provided between the plasma and the workpiece.

5. A plasma processing device comprising:

a chamber capable of maintaining an atmosphere depressurized less than atmospheric pressure;

a transmission window occupying part of a wall of the chamber;

a microwave supply source for introducing a microwave from outside to inside of the chamber via the transmission window; and

a gas introduction mechanism for introducing a gas into the chamber,

the plasma processing device being capable of forming a plasma of the gas in the chamber and performing plasma processing on a workpiece placed in the chamber, wherein

a light shield for blocking light emitted from the plasma and for allowing passage of active species emitted from the plasma is provided between the plasma and the workpiece.

6. A plasma processing device according to any one of claims 1 to 5, further comprising rectifying means for regulating distribution of gas flow on the workpiece, the gas flow being supplied from the transfer pipe.

7. A plasma processing device according to any one of

claims 1 to 6, wherein an absorber for absorbing light emitted from the plasma is provided on at least one of the inner wall of the chamber and an inner wall of the transfer pipe.

8. An ashing method for removing a resist of a workpiece having an insulating layer on which the resist is formed, comprising:

forming a plasma containing hydrogen and an inert gas;

allowing active species emitted from the plasma to act on the workpiece placed in a chamber capable of maintaining an atmosphere depressurized less than atmospheric pressure; and

removing the resist in a condition that the workpiece is not substantially irradiated with light emitted from the plasma.

9. An ashing method according to claim 8, wherein the inert gas is helium.

10. An ashing method according to claim 8 or 9, wherein the insulating layer comprises a low-k material.